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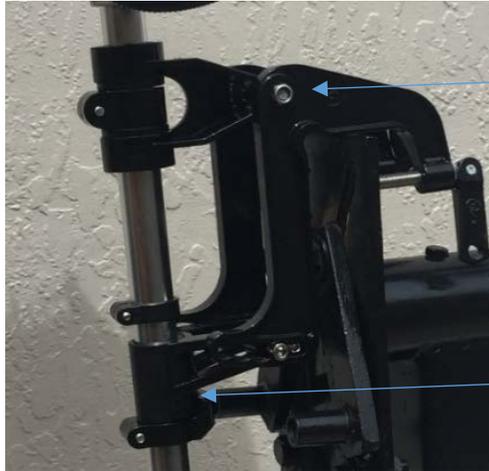
Kayak Buddys thanks you for your business. As an avid kayaker, it is my please to produce propulsion systems for various paddle watercraft. The small leg you have purchased is outfitted with all stainless and aluminum hardware. You will need to mount the unit using either a custom-made mount or a purchased unit from a supplier. Please remember the propeller needs to be fully under water and below the hull in the non-turbulent water when mounted, so a custom mount that is adjustable is recommended. The waterline in which the leg is mounted is crucial, so please make sure you check the prop height as compared to the bottom of the kayak. It should sit lower than the deck bottom, otherwise it will cavitate. The engine legs height can be adjusted over 6 inches vertically in either direction to accommodate the different styles of watercraft. Remember the unit weighs roughly 22lbs. with a standard engine mounted (12lbs by itself), so you will need a float on the engine side or a weighted ballast on the other to have optimum balance if you are not rear mounting.

The unit comes with the 4 mounting bolts, and tools for attachment, and these instructions. Some engines require both the ground wires to be connected inline. If the engine is a Honda as an example, it only comes with one black wire. The other wire can be grounded to one of the mounting bolts on the clutch housing. **The harness is provided for complete Honda systems to make it easier with the installation.**



Instructions in Detail:

1. Remove all parts from the box and make sure nothing is damaged from shipping first.
2. You will need to attach the main bracket with the stainless through bolt and nut. The picture below gives you an idea of how this looks when attached. Keep it loose until you grease the contact areas.



Bracket and clamp for mount.

3. Once the bracket is on and snugged up, make sure all clamps line up in the same direction based on the bolts on each. The upgraded leg has this done already. You will notice the 180 degree right above the lower collar. This can be spun around if you want to run unlocked.
4. The collars that sit above and below the bracket can be loosened to adjust the vertical height. I usually do this on the boat with passenger in the boat to get the ideal depth of the prop.
5. Attach the tiller arm on the side of the drive tube based on operational preference. You can loosen the clamp and rotate as need and adjust this vertically as well. You will need to loosen the large black knob and the place the arm inside the clamp.
6. **The upgraded leg has the arm already positioned and the kill switch in the optimum location on the cut down drop-in versions.** Of course, this can be repositioned. The standard leg control position is up to the operator, rotating the throttle so the cable is under the tiller arm and kill switch facing sideways is usually what most people prefer.

7. Now, take the engine out of the box and make sure the pull cord is facing the toward the passenger before placing it on the leg. The image below has the pull cord facing in the wrong direction due to it being a demo. Please make sure you have a mount or stand for assembly and tighten the mounting clamps, so the engine does not fall or slide off.



Engine pull cord should face in the same direction as the tiller arm

8. Once you have this set-in place, you can add 3 of the 4 mounting bolts and leave the one closest to the carburetor opposite the tiller arm side off for the moment. Snug the bolts up.
9. Begin routing the throttle cable up to the threaded adjustment plate behind the air cleaner. You will need to pop the front cover off. Make sure when you attach the throttle cable by rotating the butterfly of the carburetor and placing the soldered end in the conical shaped opening on the adaptor. One side has the groove and the cable feeds right through.
10. You can now adjust the linkage with mounting nut on the throttle cable and don't forget to grease the cable lightly. This is very important for optimal operation. Makes sure you set the play with the turn screw and bolt to lock the correct setting for the carb to open. It should idle with the prop not turning. Pay attention to the cable, since it is very easy to tighten the cable too much and have it bind or idle to high. Spray and grease the cable with a marine grade spray lubricant. **The upgraded leg cable sheath is Teflon lined with a stainless cable, so you do not need an internal lubricant, just a bit of grease on the end connector and throttle cable. Use a marine grease due to exposure.**



Carb throttle routing

11. Some engines do not need more than 5 clicks on the throttle to go from idle to full throttle. Others have a larger throttle plate that will use the entire range on the throttle twist grip. I normally mark the high and low marks on the shifter with a sharpie if you need see the range. Commonly these numbers are on the opposite side anyway and out of view. **The upgraded leg has a Shimano SRAM 1:1 ratio shifter**, so it shifts quickly, but still has smaller increments for trolling speeds.
12. The kill switch has normally a red and green lead from the switch, but the Honda engine has just a black coming from the CDI ignition. **All full systems come with the harness either attached on the upgraded or separately on the standard full Honda systems. I have left the waterproof connectors crimped, but not heat shrunk in case you would like to move the wires in the tube.** The red is attached to red and the black is attached to the green on the side with the 2 waterproof heat shrink connectors. The opposite side to the connector is black to black on the Honda engine and the eyelet on the red wire goes under the bolt for the fourth mounting hole in the clutch housing. This creates the ground to the engine leg. Don't forget to heat the heat shrink tubing after you close the connectors with clamps or fitting pliers. ***Some people run the kill switch wires in the tiller handle for a clean look and a hole will need to be drilled to exit out in front of the clamp or through the end cap.**
13. From this point make sure you adjust the trim bolts as needed. I usually run with about 7 degrees rise on the prop to lift the bow under power, otherwise you will bury the nose.
14. Fill your crankcase oil with the engine on its side with the filler cap pointing up. Fill this up to the lower thread inside the crankcase when you unscrew the filler plug if it's a Honda or the high mark on the filler stick on the 53cc with a good 30 weight non-synthetic oil.
15. Now, you are ready to add gas, choke and prime the bulb in order to fire it up. Make sure you do not overfill the oil, otherwise it will end up in the carburetor. * I would use a high-grade non-ethanol fuel.
16. Grease all rotational parts and spray all surfaces with CRC marine for the utmost protection from saltwater, if you are using it in that environment.
17. Please run the carb dry if it will sit for a period of time.



Grease and adjustment points

Upgraded Leg Additions:

18. The upgraded leg has the 2-blade prop and collar attached with Loctite on the collar threads to prevent the prop from loosening up. Check occasionally to make sure it remains secure. Removal is not needed unless a fin is sheared from hitting an obstruction. A spare shear pin is included with the original prop and shifter as well. All components are in separate plastic bags.
19. The tiller handle has been upgraded with a new Shimano shifter and stainless cable, along with billet fittings.

Break-in:

Once you have it started the engine and all throttle adjustments are made, let it thoroughly warm up (5 minutes) and begin to cycle the throttle up to half throttle for a for a 2-3 minutes and then let it idle for another 5 minutes. I then let it completely cool and complete the procedure again. Ring seating is not necessary but completing a few heat cycles ensures everything breaks-in as normal. Being that these engines are air-cooled it is vital to check oil every trip and change the crankcase oil every 20-30 hours of use. These do not have low oil shut off switches, so please check accordingly. Coat all engine services after use with a good WD-40 or corrosion block to keep all metal surfaces clean of oxidation.

If you need any assistance, feel free to go the website and use the comment page under help to drop a note to us here at *kayakbuddys*. Include all of your relevant information, so we can further assist you. If you need more immediate help, please call 305 926-2937.